

Art Unit: 3657

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on January 5, 2010 has been entered.

Reissue Applications

2. The reissue oath/declaration filed with this application is defective because it fails to contain the statement required under 37 CFR 1.175(a)(1) as to applicant's belief that the original patent is wholly or partly inoperative or invalid. See 37 CFR 1.175(a)(1) and see MPEP § 1414. As stated in the Appeal Brief filed May 8, 2009, the applicant believes that during original prosecution aspects pertaining to the cable support were overlooked. As such this supposed error should appear in the oath.

3. Claims 1-40, 42, 44-61, 63-65, 67-71, 73, and 74 are rejected as being based upon a defective reissue oath under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the oath is set forth in the discussion above in this Office action.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 3657

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 37-40, 42, 44, 50-56, 69-70, 73, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,206,144 to Di Bella in view of US 4,582,177 to Carre et al.

Re-claim 37, Di Bella teaches a cable disc brake for a bicycle, comprising: a caliper housing 16 has a mounting bracket (i.e. portions containing bores 18) for attachment to a bicycle and a cable support (see the arm section projection from caliper body 16, see figure 1) having an opening 25 for guiding a cable 22 therethrough (the pin is part of the cable support); the cable support extends from a surface of the caliper housing 16 and is not adjustable relative to the surface of the caliper housing (i.e. is molded as one piece with the housing, as in the instant invention); a first friction member 37 is coupled to the caliper housing 16 for movement between a release position and a braking position; a second friction member 40 is coupled to the caliper housing 16 and arranged parallel to the first friction member 37 to form a rotor receiving slot, see figure 2; an actuated mechanism 20 is movably coupled to the caliper housing 16 to move the first friction member 37 in an axial direction from the release position towards the second friction member 40 to the braking position, see column 3 lines 58-67 to column 4 line 1; the

Art Unit: 3657

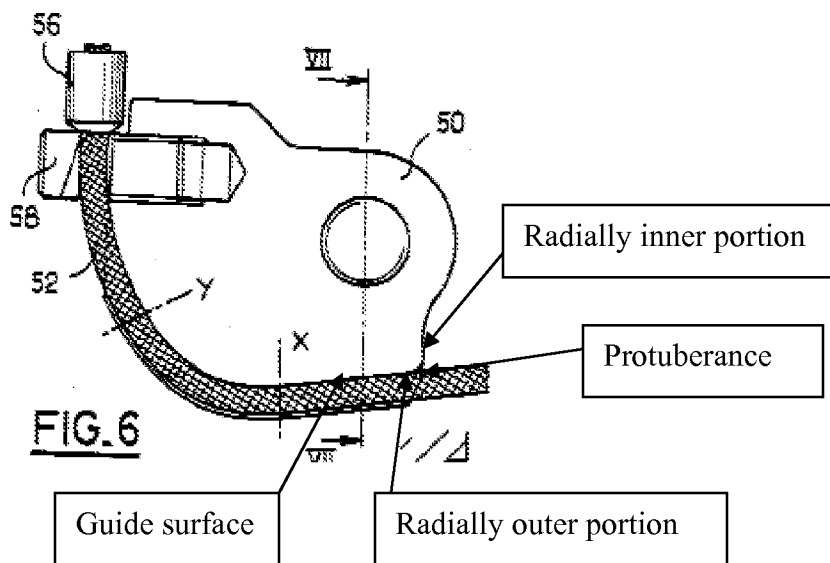
actuated mechanism 20 comprises an elongated arm rotatably coupled to the caliper housing 16 to cause the actuated mechanism to move the first friction member 37 from the release position towards the braking position; a biasing mechanism 100 applies a biasing force between the caliper housing 16 and the actuating arm 20; and an adjusting mechanism 30 adjusts the biasing force applied between the caliper housing 16 and the actuating arm in addition to changes of biasing force caused by rotation of the actuating arm relative to the caliper housing, see column 3 lines 30-35. Rotation of nut 30 compresses torsion spring 100, this would adjust the biasing force and regulate the braking. Support for this position can be found in Anderson, see cited references. However, Di Bella fails to teach the actuating arm having a curved guide surface with a first portion coincident with a cable clamp and a second portion that extends from the first portion towards the cable support so that the cable, when coupled to the cable clamp, approaches the guide surface from the opening in the cable support essentially tangent to the guide surface and is supported by the guide surface when the first friction member is in the release position.

Carre et al. teach an actuating arm that replaces a typical actuating arm (as seen in figure 1) for improving a braking response, see column 1 lines 66-68 to column 2 lines 1-16. The actuating arm has a curved guide surface (see figure 6) with a first portion coincident with a cable clamp 58 and a second portion (i.e. portion from point X towards the cable support) that extends from the first portion towards the cable support (as part of Di Bella), such that the cable, when coupled to the cable clamp 58, approaches the guide surface from the opening in the cable support essentially tangent to the guide surface and is supported by the guide surface when the first friction member is in the release position. As seen in figure 6 the cable approaches the guide surface of the actuating arm in an essentially tangential direction. Furthermore, Carre et

Art Unit: 3657

al. teach that the curved guide surface of the actuation arm provides for an increase in torque exerted during rotation, see column 4 lines 61-64, this improves the braking response. It would have been obvious to one of ordinary skill in the art to have replaced the actuating arm of Di Bella with the actuating arm of the type taught by Carre et al., thereby improving the overall brake performance and response of the cable actuated brake mechanism.

Re-claims 38-40, the actuating arm 50 of Carre et al. as used in Di Bella comprises the second portion of the guide surface formed by a projection, or elongated protuberance, that points in a rotational direction of the actuating arm towards the cable support, the cable is supported on and by the protuberance (the lower portion of 50 as illustrated in figure 6 consists of a small protuberance); the projection has a radially outer portion that extends towards the cable support and a radially inner portion that extends away from the cable support back towards a side surface of the actuating arm; the projection is disposed in close proximity to a radially outermost portion of the actuating arm.



Re-claim 42, the biasing mechanism is a spring 100.

Art Unit: 3657

Re-claim 44, the biasing mechanism is a spring 100 having a first end and second end, the adjusting mechanism 30 adjusts the biasing force by moving the second end (i.e. hooked end that is attached to the actuating arm 20) relative to the first end (i.e. the hooked end that is attached to the caliper housing 16. Rotation of nut 30 will move the second end in an axial direction, which will result in movement of the second end relative to the first end.

Re-claim 50, the actuating arm rotates about a rotational axis (coaxial with bolt 19, see figure 1), the caliper housing includes: a first mounting flange with a first opening 18 (that aligns with opening 17 of the bicycle frame); a second mounting flange with a second opening 18 (that aligns with another opening 17 of the bicycle frame, see figure 1); the first opening is disposed above the rotational axis (as seen in figure 1); the second opening is disposed below the rotational axis.

Re-claim 51, when the caliper housing 16 is mounted to a front fork 12 of the bicycle, the cable support is disposed above the rotational axis, see figure 1.

Re-claims 52 and 53, both the cable support and the guide surface, of the type taught by Carre et al. and when used in the device of Di Bella, extends rearwardly of the rotational axis.

Re-claim 54, the cable approaches the guide surface, of the modified actuating arm, from the opening in the cable support essentially in a straight line. Carre et al. teach the cable approaching the guide surface from a cable support in essentially a straight line. The cable support of Carre et al. is element 30.

Re-claim 55, spring 100 is a torsion spring.

Re-claim 56, one end of torsion spring 100 is coupled to the actuating arm 20.

Re-claim 69, the cable support is one piece with the surface of the caliper housing.

Art Unit: 3657

Re-claim 70, the cable support comprises an elongated member.

Re-claim 73, Di Bella teaches a cable disc brake for a bicycle, comprising: a caliper housing 16 has a mounting bracket (i.e. portions containing bores 18) for attachment to a bicycle and a cable support (see the arm section projection from caliper body 16, see figure 1) having an opening 25 for guiding a cable 22 therethrough (the pin is part of the cable support); the cable support extends from a surface of the caliper housing 16 and is not removable relative to the surface of the caliper housing (i.e. is molded as one piece with the housing, as in the instant invention); a first friction member 37 is coupled to the caliper housing 16 for movement between a release position and a braking position; a second friction member 40 is coupled to the caliper housing 16 and arranged parallel to the first friction member 37 to form a rotor receiving slot, see figure 2; an actuated mechanism 20 is movably coupled to the caliper housing 16 to move the first friction member 37 in an axial direction from the release position towards the second friction member 40 to the braking position, see column 3 lines 58-67 to column 4 line 1; the actuated mechanism 20 comprises an elongated arm rotatably coupled to the caliper housing 16 to cause the actuated mechanism to move the first friction member 37 from the release position towards the braking position. However, Di Bella fails to teach the actuating arm having a curved guide surface with a first portion coincident with a cable clamp and a second portion that extends from the first portion towards the cable support so that the cable, when coupled to the cable clamp, approaches the guide surface from the opening in the cable support essentially tangent to the guide surface and is supported by the guide surface when the first friction member is in the release position.

Art Unit: 3657

Carre et al. teach an actuating arm that replaces a typical actuating arm (as seen in figure 1) for improving a braking response, see column 1 lines 66-68 to column 2 lines 1-16. The actuating arm has a curved guide surface (see figure 6) with a first portion coincident with a cable clamp 58 and a second portion (i.e. portion from point X towards the cable support) that extends from the first portion towards the cable support (as part of Di Bella), such that the cable, when coupled to the cable clamp 58, approaches the guide surface from the opening in the cable support essentially tangent to the guide surface and is supported by the guide surface when the first friction member is in the release position. As seen in figure 6 the cable approaches the guide surface of the actuating arm in an essentially tangentially direction. Furthermore, Carre et al. teach that the curved guide surface of the actuation arm provides for an increase in torque exerted during rotation, see column 4 lines 61-64, this improves the braking response. It would have been obvious to one of ordinary skill in the art to have replaced the actuating arm of Di Bella with the actuating arm of the type taught by Carre et al., thereby improving the overall brake performance and response of the cable actuated brake mechanism.

Re-claim 74, Di Bella teaches a cable disc brake for a bicycle, comprising: a caliper housing 16 has a mounting bracket (i.e. portions containing bores 18) for attachment to a bicycle and a cable support (see the arm section projection from caliper body 16, see figure 1) having an opening 25 for guiding a cable 22 therethrough (the pin is part of the cable support); the cable support extends from a surface of the caliper housing 16 and is not adjustable relative to the surface of the caliper housing; the cable support is one piece with the surface of the caliper housing form which is extends, see figures 1 and 4; a first friction member 37 is coupled to the caliper housing 16 for movement between a release position and a braking position; a second

Art Unit: 3657

friction member 40 is coupled to the caliper housing 16 and arranged parallel to the first friction member 37 to form a rotor receiving slot, see figure 2; an actuated mechanism 20 is movably coupled to the caliper housing 16 to move the first friction member 37 in an axial direction from the release position towards the second friction member 40 to the braking position, see column 3 lines 58-67 to column 4 line 1; the actuated mechanism 20 comprises an elongated arm rotatably coupled to the caliper housing 16 to cause the actuated mechanism to move the first friction member 37 from the release position towards the braking position. However, Di Bella fails to teach the actuating arm having a curved guide surface with a first portion coincident with a cable clamp and a second portion that extends from the first portion towards the cable support so that the cable, when coupled to the cable clamp, approaches the guide surface from the opening in the cable support essentially tangent to the guide surface and is supported by the guide surface when the first friction member is in the release position.

Carre et al. teach an actuating arm that replaces a typical actuating arm (as seen in figure 1) for improving a braking response, see column 1 lines 66-68 to column 2 lines 1-16. The actuating arm has a curved guide surface (see figure 6) with a first portion coincident with a cable clamp 58 and a second portion (i.e. portion from point X towards the cable support) that extends from the first portion towards the cable support (as part of Di Bella), such that the cable, when coupled to the cable clamp 58, approaches the guide surface from the opening in the cable support essentially tangent to the guide surface and is supported by the guide surface when the first friction member is in the release position. As seen in figure 6 the cable approaches the guide surface of the actuating arm in an essentially tangential direction. Furthermore, Carre et al. teach that the curved guide surface of the actuation arm provides for an increase in torque

Art Unit: 3657

exerted during rotation, see column 4 lines 61-64, this improves the braking response. It would have been obvious to one of ordinary skill in the art to have replaced the actuating arm of Di Bella with the actuating arm of the type taught by Carre et al., thereby improving the overall brake performance and response of the cable actuated brake mechanism.

7. Claims 45, 46, and 57-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Di Bella in view of Carre et al. as applied to claims 44 and 55 above, and further in view of US 5,201,402 to Mott.

Re-claims 45, 46, 57, 58 and 60, Di Bella fails to teach the ends of the torsion spring capable of being coupled to various positions of both the caliper housing and the actuating arm, as in the use of a plurality of holes in both the caliper housing and the actuating arm for adjusting the biasing force of the torsion spring. Mott teaches a torsion spring having two hooked ends for attachment to holes of adjacent structures. One structure is provided with a plurality of holes 42 for varying the biasing force of the torsion spring. It would have been obvious to one of ordinary skill in the art to have provided the caliper housing and/or the actuating arm of Di Bella with a plurality of holes for receiving a respective end of the torsion spring as taught by Mott, thereby providing a set degree of biasing force for the torsion spring, as opposed to the adjusting mechanism of Di Bella, since the holes would provide consistently reproducible force values that are easy to obtain.

Re-claim 59, the second end of the torsion spring 100 is directly connected to the actuating arm 20.

Art Unit: 3657

8. Claims 47 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Di Bella in view of Carre et al. as applied to claims 37 and 70 above, and further in view of US 3,765,511 to Toyomasu.

Re-claim 47, Di Bella fails to teach a cable adjusting bolt fitted within the opening in the cable support through which the cable passes. Toyomasu teaches an adjusting bolt 28 fitted within an opening in a cable support, the bolt is used for adjusting a brake cable slack or tension. It would have been obvious to one of ordinary skill in the art to have provided the cable support of Di Bella with a cable adjusting bolt as taught by Toyomasu, thus providing a method of adjusting the slack or tension of the brake cable.

Re-claim 71, Di Bella fails to teach the elongated member forming the opening such that the opening is immovable relative to the surface of the caliper housing, but rather teach the opening (as part of pin 23) being removable. Toyomasu teaches a cable support comprising an elongated member, wherein the opening is formed in the elongated member such that the opening immovable relative to the surface of the caliper housing. In essence the opening is a through-bore formed in a distal end of the elongated member. This is functionally equivalent to the structure of Di Bella, in that both provide support for the cable and guide the cable to the actuating arm. It would have been obvious to one of ordinary skill in the art to have provided the cable support of Di Bella with an integral and immovable opening formed in the elongated member as taught by Toyomasu, as each structure is functionally equivalent and would have yielded the same expectant results.

Art Unit: 3657

9. Claims 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Di Bella in view of Carre et al. as applied to claim 37 above, and further in view of US 5,979,609 to Tsai.

Re-claims 48 and 49, Di Bella teaches the caliper housing having a mounting flange (i.e. portions of the housing having bores 18) for mounting the caliper housing to the bicycle. However, Di Bella fails to teach the mounting flange as having slots that allow for adjustment of the caliper housing to and from the rotor such that the caliper housing is axially fixed relative to the rotor during operation of the actuating arm; or the mounting flange that includes an opening for receiving a mounting bolt therethrough substantially perpendicular to the rotational axis of the actuating arm. Tsai teaches a bicycle brake caliper having a caliper housing 30 with mounting flanges 300 having slots (or bores) substantially perpendicular to an actuating arm axis, the slots allow for re-positioning of the caliper housing relative to the rotor, see column 4 lines 12-23. It would have been obvious to one of ordinary skill in the art to have provided the caliper housing of Di Bella with mounting flanges having through bores perpendicular to an actuating arm axis of the type taught by Tsai, thus allowing for the re-positioning of the caliper housing relative to the rotor as desired.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Anderson teaches a torsion spring tension adjusted by compression. Yoshigai teaches a torsion spring adjustment device.

Art Unit: 3657

11. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is 571-272-7128.

The examiner can normally be reached on Wednesday-Friday from 6:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi, can be reached at 571-272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-6584.

TJW

/Thomas J. Williams/
Primary Examiner, Art Unit 3657

January 7, 2010